**IA BIO Design Template**

1. Name

Class

Date

**Title of Experiment**

1. **Aim** ( a brief statement, 1-2 sentences, statement of the purpose of experiment, in own words):
2. **Safety Precautions** (Record any relevant safety information):
3. **Introduction**
4. Focused Research Question- BE DETAILED AND SPECIFIC!!

How does \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_affect \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

(independent variable with units) (dependent variables with units and description of sample group)

**OR**

Is (are) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_as effective as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

1. Background

What do I already know about the topic of the experiment (any prior knowledge and or reference to text or other resource material)?

1. Hypothesis

Make a prediction on what you expect the outcome of the experiment will be.

Explain why you expect this result?

1. **Identifying Variables**
2. Independent Variable (this is the variable you change or manipulate)
3. State your independent variable (must be quantitative).
4. What are the units of measure for your independent variable?
5. What are the settings/treatments you are using for this experiment should have at least 4 settings?
6. Why/How did you select these settings?

1. How will you obtain/measure this?
2. Dependent Variable (this is the resulting outcome of your settings or what you measure at the end of the experiment)
3. State your dependent variable (must be quantitative).
4. What are the units of measure for your dependent variable?
5. How will you obtain the measurements for this variable?
6. Fixed/controlled Variables- Identify a minimum of 4 (these are the factors that could impact your results if not kept the same throughout the experiment)
7. State your Fixed Variables with units
   1. Variable 1
   2. Variable 2
8. Variable 3
9. Variable 4
10. Explain why it is important to keep each of the identified fixed variable the same
    1. Variable 1
    2. Variable 2
    3. Variable 3
    4. Variable 4
11. How did you ensure that the variables were the same throughout the testing?
    1. Variable 1
    2. Variable 2
    3. Variable 3
    4. Variable 4
12. **Procedure**
    * 1. List Necessary Equipment
      2. Illustration of Experiment Layout (if necessary)
      3. Step by Step Method Used (written in third person and could be repeated by another person)
      4. Describe subject/sample group used, should be 3-5 samples per treatment/setting.
      5. Additional Questions in regards to your procedure
13. Explain how your fixed variables were checked to ensure that each remained constant throughout the experiment.
14. How did you change the independent variable and ensured that it was kept constant on your predetermined setting?
15. How will your dependent variable be measured and recorded and what units will be used?
16. Are both your independent variable and dependent variable quantitative?
17. How many trials are you running? (minimum of five at each predetermined independent variable setting)

1. How was your sample group chosen?
2. What is your comparison group/controlled group?